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On a new species of the genus *Princeps* Hübner, [1807] from Cabinda (Angola) (Lepidoptera: Papilionidae)

A. Bivar de Sousa & L.F. Mendes

Abstract

A new species of the genus *Princeps* Hübner, [1807] of the “*zenobia* group” is described upon two males collected in the primary forest of Cabinda (Angola) and originally assigned to “*Papilio cypraeofila*”; it is compared with the remaining species of the group though it seems particularly close to *Princeps* (*Druryia*) *cyproeofila* (Butler, 1868) and to *P. (D.) filaprae* (Suffert, 1904).

KEY WORDS: Lepidoptera, Papilionidae, *Princeps*, *Druryia*, *zenobia*-group, new species, Angola.

**Sobre una nueva especie del género *Princeps* Hübner, [1807] de Cabinda (Angola)
(Lepidoptera: Papilionidae)**

Resumen

Se describe una nueva especie del género *Princeps* Hübner, [1807] del “grupo *zenobia*” sobre dos machos colhidos en la floresta primaria de Cabinda (Angola) y originalmente determinados como “*Papilio cypraeofila*”; se la compara con todas las especies del grupo, aunque probablemente sea más próxima a *Princeps* (*Druryia*) *cyproeofila* (Butler, 1868) y a *P. (D.) filaprae* (Suffert, 1904).

PALABRAS CLAVE: Lepidoptera, Papilionidae, *Princeps*, *Druryia*, grupo *zenobia*, especie nueva, Angola.

**Sobre uma espécie nova do género *Princeps* Hübner, [1807] de Cabinda (Angola)
(Lepidoptera: Papilionidae)**

Resumo

Descreve-se uma espécie nova do género *Princeps* Hübner, [1807] do “grupo *zenobia*” sobre dois machos colhidos na floresta primária de Cabinda (Angola) e originalmente determinados como “*Papilio cypraeofila*”; é comparada com as outras espécies do grupo, embora seja provavelmente mais próxima de *Princeps* (*Druryia*) *cyproeofila* (Butler, 1868) e de *P. (D.) filaprae* (Suffert, 1904).

PALAVRAS CHAVE: Lepidoptera, Papilionidae, *Princeps*, *Druryia*, grupo *zenobia*, espécie nova, Angola.

Introduction

DRUCE (1875, sub *Papilio*) registered for the first time *Princeps cyproeophila* (Butler, 1868) in Angola upon J. J. Monteiro insects from unreported localities. Almost one century later, BACELAR (1956) assigned *Papilio cypraeophila* (sic) to Buco Zau, in the “Portuguese Mayombe” (north-eastern Cabinda: Angola) upon 2 males deposited in the (then) Centro de Zoologia of the Junta de Investigações do Ultramar-now the collection of the Instituto de Investigação Científica Tropi-

cal / Jardim Botânico Tropical, in Lisbon, Portugal, registered in the text as CZ; she notes further, that the species flies in Sierra Leone, Cameroon and Angola and says furthermore that it was reported by Druce from the country. Later (BACELAR, 1957), she identified one other specimen obtained by Eng^o J. Azevedo e Silva in the Baixa do Rio Chiaca, reported as being in the collection of the Serviços Florestais de Angola and considered to belong to the same species; it was registered as *Papilio zenobius zenobius* Godart, 1819 (now accepted as a *P. cyproeofila* synonym) and in the “Previous references” to the country she assigns the material reported by DRUCE, 1875 and by BACELAR, 1956 as belonging to the very same species.

The reexamination of the two Buco Zau males allows the description of one new species of the “zenobia-group” of *Princeps* (*Druryia*) (HANCOCK, 1993), as several differences were noticed in respect to all the remaining taxa known in the group, though it seems particularly closer to “*P. cyproeofila*” and to “*P. filaprae*”; despite the range assigned by LARSEN (2005) to *P. cyproeophila* and its subspecies (*P. fernandinus*, an endemic from Bioko island, included), it is simultaneously possible to assert that *P. cyproeofila* does not occur in Angola-its West African distribution registered from Sierra Leone to Nigeria by ACKERY *et al.* (1995) and by D’ABRERA (1997) seems to extend, however, from Guinea to Cameroon as reported by WILLIAMS (2008), though Nigeria corresponds to its southernmost limit.

Material and Methods

Angolan material studied by DRUCE (1875) remains untraceable (J. J. Monteiro never collected in Cabinda) and the only specimen from the Chiaca River reported by BACELAR (1957) was impossible to locate though, if not lost, it certainly in Angola. However, the two Buco Zau males noticed by BACELAR (1956) were located in the CZ collection and they were both hand labeled as “*Papilio cypraeofila* Butl. - det. A. Bacelar”. Both specimens remain pinned with the short and strong white pins typical for the CZ Lepidoptera obtained in Cabinda and they both lacked a CZ collection number (only quite recently we registered both as part of the CZ collection). One of them had no labels, the other showed one hand-written label (bluish ink, very small letters in a minute yellowish thick paper label) typical for all the specimens collected by Laura Malheiro da Silva in Cabinda between May and December 1952, that are today deposited in the CZ entomological collection.

The two Cabindan localities from where the species was reported (so, Druce’s material is excluded) are quite close to each other, being the Rio Chiaca ca 04° 52’ S, 12° 34’ E, 120 m altitude, and Buco Zau ca 04° 46’ S, 12° 34’ E, < 300 m altitude. Both are (or were till the seventies), covered by primary rainforest- the “Floresta do Alto Maiombe” after GOSSWEILER & MENDONÇA (1939) or “Floresta Húmida de Nevoeiros Sempervirente Poliestrata de Baixa Altitude, Guineense (Alto Maiombe)” after GRANDVAUX-BARBOSA (1970) - characterized by its extremely diverse flora.

The following material available for comparison includes the senior co-author’s collection (BS) and the Angolan samples were reported by BIVAR-DE-SOUSA & FERNANDES (1964, 1966); they include: 1 ♂ of *P. cyproeofila praecyola* Suffert, 1904 from Ndjok (Cameroon) collected in 1995 (BS-3751); 2 ♂ of *P. mechowii* (Dewitz, 1881) from the RCA with no date or precise location (BS-248-249) and 1 ♀ from near Nova Caipemba (Uige-Angola), January 1964 (BS-103); 1 ♂ of *P. mechowianus* Dewitz, 1885) from the RCA, with no date or precise location (BS-250); 3 ♂ of *P. zenobia* from the RCA, no date or precise location (BS-251-253) and 1 ♂ 1 ♀ from the Fazenda S. José, Nova Caipemba (Uige-Angola), January 1965 (BS-104-105).

Taxonomic study

***Princeps* (*Druryia*) *bacelarae* Bivar de Sousa & Mendes, sp. n. (Figs. 1-2, 11-12)**

(= ? *Papilio cyproeofila* sensu Druce, 1875)

(= *Papilio cypraeofila* sensu Bacelar, 1956)

(= ? *Papilio zenobius zenobius* sensu Bacelar, 1957)

Type material: Holotype ♂: Cabinda: Buco Zau, dia, 27-VII-1952 (CZ-5639). Paratype ♂: No labels (Cabinda series) (CZ-5640).

Description: Length of the forewing: 53.6-54.5 mm. Color pattern of dorsal and ventral surfaces as in Figs. 1-2; discal median light bands of the wings creamy white, straight, compact (each individual spot distinctly wider than long and not clearly individualized from the neighboring ones); band of the hindwing parallel-sided, the one from the forewing narrower towards the apex. Marginal dots also cream, quite small on the anterior wings, not much developed on the posterior ones, where they are as wide as long to wider than long. Androconial areas quite reduced, exclusively present along the inner part of the light bands of the cubitals. Pseuduncus as in Figs. 11-12, apically enlarged (somewhat spatulated); basal spines robust, sometimes with supplemental denticles; pseuduncus shorter than 3 times the length of the basal spines. Valve ovoid, the harpa quite inconspicuous, reduced to a few almost invisible teeth (Figs. 13-14).

Etymology: The new species is named after Miss Amélia Bacelar, the first Portuguese entomologist that studied the Lepidoptera fauna from Angola, who first reported the presence of the “zenobia-group” in the country, and who first identified (though under *Papilio cypraeofila*) the sample now considered to integrate the new species under description.

Notes: The specimen without labels is undoubtedly the other male assigned by BACELAR (1956) to Buco Zau like the labelled specimen but that was collected on 30-VI-1952. They certainly belong to the same series, they both lack CZ registration number as assigned and they were together, side by side, in the same entomological drawer. The word “dia” in the original label of the holotype, indicates that the specimen was collected during the day.

Discussion: After WILLIAMS (2007, sub *Papilio* (*Princeps*)) 8 species are presently known in the “zenobia-group” to which the new species also certainly pertains though it remains known by the male sex only; 3 of them are considered to include 2 subspecies, so this corresponds to the following 11 taxa: *P. zenobia* (Fabricius, 1775); *P. cypraeofila cypraeofila* (Butler, 1868); *P. cypraeofila praecyola* Suffert, 1904; *P. fernandus* Fruhstorfer, 1903; *P. filaprae filaprae* (Suffert, 1904); *P. filaprae mosulanus* Hancock, 1988; *P. gallienus* (Distant, 1879), *P. mechowi mechowi* (Dewitz, 1881); *P. mechowi whitnalli* (Neave, 1904); *P. mechowianus* (Dewitz, 1885) and *P. nobicea* (Suffert, 1904). He considers, further, as *incertae sedis*, one more species that certainly falls within the same group, *P. andronicus* Ward, 1871. *P. nobicea* is not recognized by HANCOCK (1993) as a good species (certainly understood under *P. zenobia*) but he integrates in the “group” *P. andronicus* and also *P. maessenei* (Berger, 1974) - reported by WILLIAMS (*op. cit.*) as a synonym of *P. nobicea*. Subspecies *praecyola* is considered by other authors as part of *P. fernandus* and not of *P. cypraeofila* but according to LARSEN (2005) it intergrades with the nominal *P. cypraeofila* in the Cross River Loop area, and so it clearly corresponds to a subspecies of this.

Among the preceding taxa, *P. zenobia* (Figs. 3-4) known from Guinea to Uganda and to northern Angola, and *P. maessenei* plus *P. nobicea* (if not synonymous) from Togo and Ghana, are the only ones that, like those considered to enter the “cynorta-group” and the “echerioides-group” (both with clear sexual dimorphism) present the base of space 7 of the hindwing ventral with two independent ovoid black spots; in all the remaining species of the “zenobia-group”, *P. bacelarae* Bivar de Sousa & Mendes, sp. n. included, there is instead, a more or less strong, continuous, single line of blackish scales.

P. andronicus from Cameroon is different from *P. bacelarae* Bivar de Sousa & Mendes, sp. n. as there is no light spot on space 6 of the forewing, a character it shares within the species-group with *P. zenobia* only; the marginal white spots are, furthermore, extremely reduced on the four wings and the light spots of the forewing band are conspicuously isolated from each other. Besides, the wing light bands are pure white, with no trace of cream or yellow.

P. fernandus from Bioko Island shows the median light band on the four wings very narrow (ca one half of that of *P. bacelarae* Bivar de Sousa & Mendes, sp. n.) and the marginal internervular spots of the hindwing are large and very elongated.

P. mechowi (Figs. 5-6) from Cameroon to Sudan, Uganda and Angola and *P. gallienus* from Eastern Nigeria, Cameroon, Congo and former Zaire, show the hindwing clearly angulated at the level

of nerve 3 contrary to all the remaining species (the new one included) in which the correspondent area is rounder; besides, the light bands on all four wings are narrow and conspicuously yellow, the marginal light spots of the hindwing are well developed and the light dots of the forewing band are clearly isolated, not forming a continuous line; former species present, furthermore (LARSEN, 2005), extended furry androconial areas as opposed to the case of the new Angolan species.

P. mechowianus (Figs. 7-8) from northern Angola, former Zaire, Central African Republic (RCA) and ? Sudan, shows the light bands of the forewing clearly curved inwards in the praedistal area (visible dorsal and ventrally) – these bands are straight in *P. bacelarae* Bivar de Sousa & Mendes, sp. n. and in all the remaining species; otherwise, its androconial areas are wide, occupying most of the median dorsal area on the border between the dorsal brown area and the light median band of the forewing.

P. cyproeofila s. s. flies from Guinea to Western Nigeria (D'ABRERA, 1997, WILLIAMS, 2007) and as previously registered, was reported-certainly due to misidentification-as present also in Angola; *P. cypraeophila praecyola* (Figs. 9-10) is known from Eastern Nigeria, Cameroon and RCA; and *P. filaprae* is registered to occur in the Cameroon, Congo, Zaire, Angola and continental Equatorial Guinea - it was reported by VILLIERS (1979, sub *Papilio zenobius lactifasciata* Le Cerf) as ranging from the Cameroon to Angola (no precise location in Angola). All these three entities though eventually closer to the new Angolan species than all the remaining species in the group, present much bigger white marginal dots on the hindwing and a clearly less dense discal median light band on the forewing, each one of the elemental dots being much more individualized from the others than happens with *P. (D.) bacelarae* Bivar de Sousa & Mendes, sp. n. Furthermore, in the typical *P. (D.) cyproeofila* (after LARSEN, 2005) and in *P. (D.) cyproeofila praecyola*, the androconial areas are, much bigger than in the new species, as they extend mainly along each one of the forewing cubital nerves, bordering internally the light spots of the dorsal median band, while in *P. (D.) bacelarae* Bivar de Sousa & Mendes, sp. n. though they are restricted to almost this same area, they are almost vestigial; the condition in *P. filaprae* is unknown for us, but it should be similar, since this species' validity relative to *P. cyproeofila* is questioned by LARSEN (2005).

As far as the male genitalia are concerned *P. bacelarae* Bivar de Sousa & Mendes, sp. n. do not seem strongly different from what is known in *P. (D.) zenobia* (Figs. 15-17), *P. (D.) mechowi* (Figs. 18-20), *P. (D.) mechowianus* (Figs. 21-23) and *P. (D.) cyproeofila* (Figs. 24-27); indeed, the existence of great uniformity between the genitalias inside one same evolutive line of *Princeps* was already pointed out relatively to other species-groups by KIELLAND (1990) and by SMITH *et al.* (2008). However, despite the similar design, the genitalia of *P. bacelarae* Bivar de Sousa & Mendes, sp. n. are clearly more similar to those of *P. cyproeofila praecyola* than to the remaining ones.

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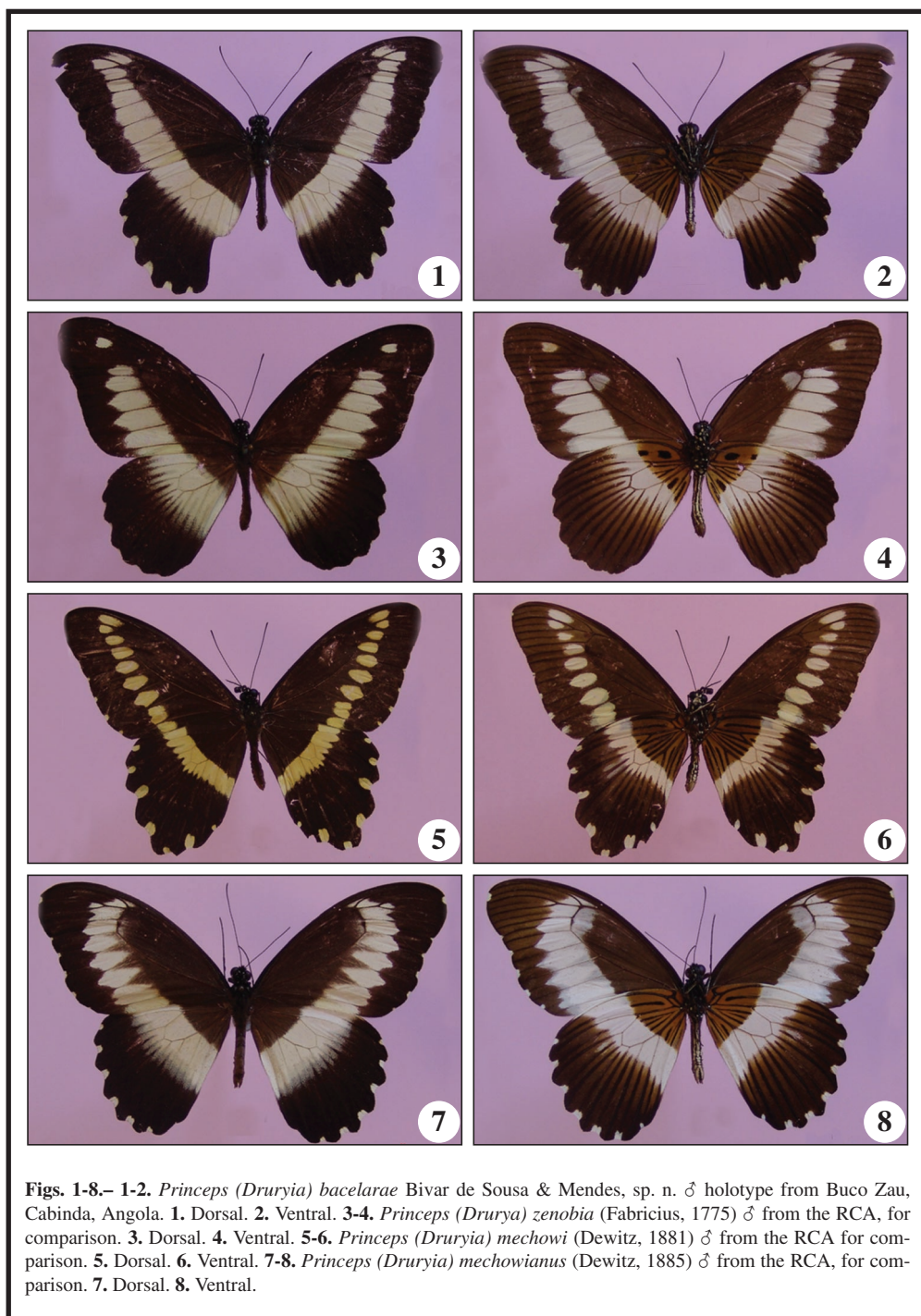
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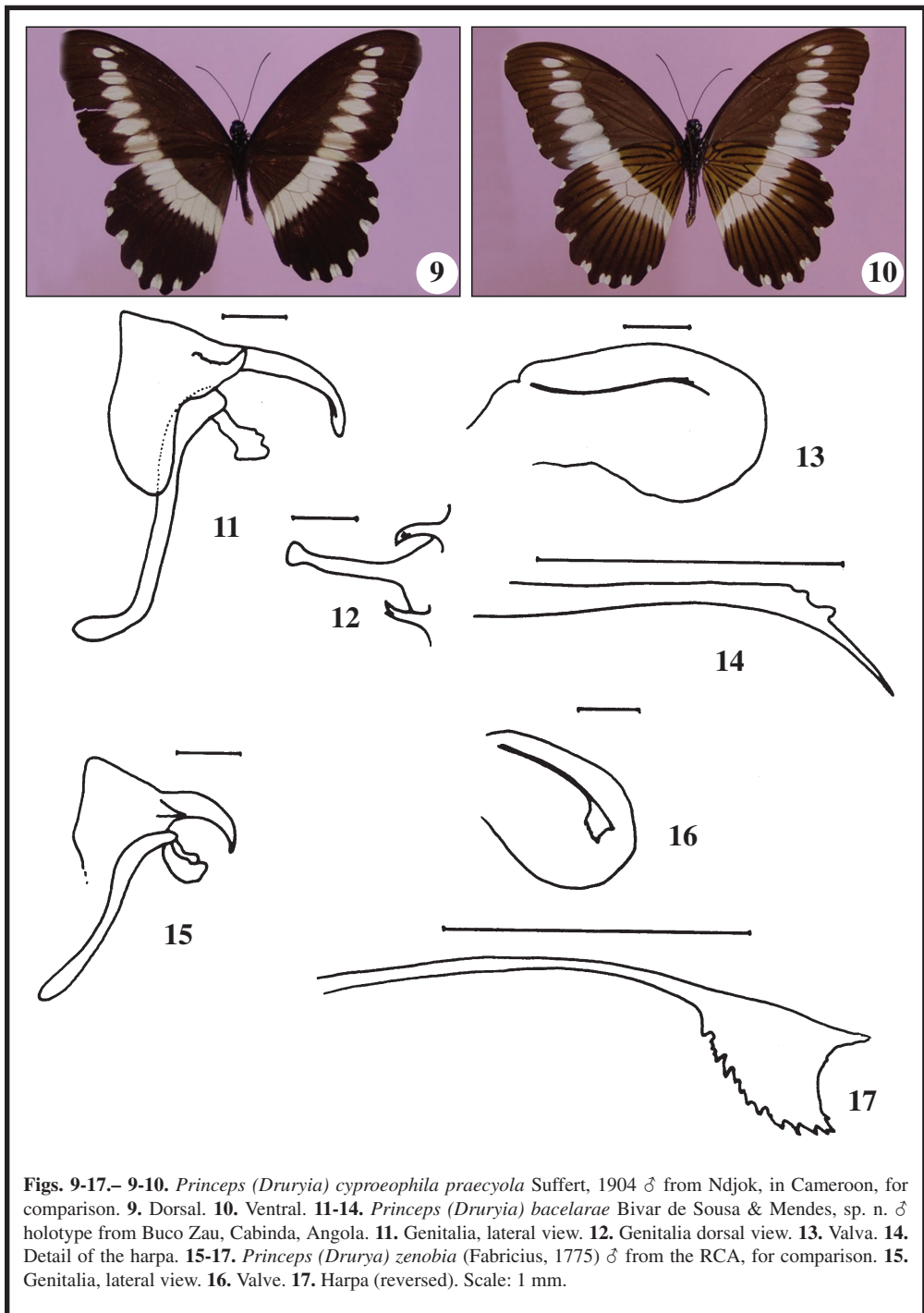
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Figs. 9-17.— **9-10.** *Princeps (Druryia) cyproeophila praecyola* Suffert, 1904 ♂ from Ndjok, in Cameroon, for comparison. **9.** Dorsal. **10.** Ventral. **11-14.** *Princeps (Druryia) bacelarae* Bivar de Sousa & Mendes, sp. n. ♂ holotype from Buco Zau, Cabinda, Angola. **11.** Genitalia, lateral view. **12.** Genitalia dorsal view. **13.** Valva. **14.** Detail of the harpa. **15-17.** *Princeps (Druryia) zenobia* (Fabricius, 1775) ♂ from the RCA, for comparison. **15.** Genitalia, lateral view. **16.** Valve. **17.** Harpa (reversed). Scale: 1 mm.

